

## **QuesCom 300 GSM**

*Version 4.20*

### **Product overview**

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## 1. Introduction

Business communication portal, QuesCom 300 connects your different telecom networks, landline, mobile and VoIP.



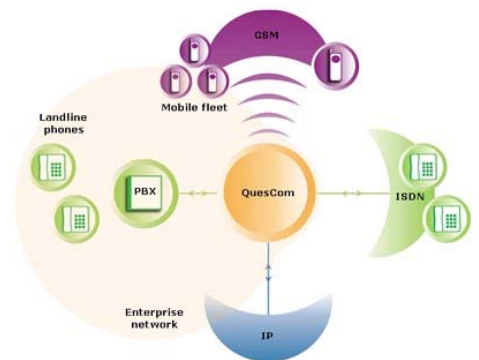
By drastically reducing your phone bill and improving productivity, QuesCom 300 is paid off in a few months.

The enterprise reduces telecom costs without degrading service quality for users. Added values are offered to them as well as to their correspondents.

- One number
- Mobile Extension
- Fax sending and receiving
- Voice messaging
- Call management & redirection
- CTI applications
- Interactive Voice Response
- Automatic Call Distribution

Developed to grow at your company's speed, it is modular and even ready to support future IP telephony architecture.

*This document is aiming at giving a hardware and software description of the QuesCom 300 as well as all features and resources.*



## 2. Value-for-money features

### 2.1 GSM gateway

The GSM gateway strongly reduces enterprises' telephone bill:

- by converting fixed-line calls (originating in a PBX) to any mobile phone (F2M) in « mobile to mobile » (M2M) calls, up to 50 % cheaper,
- By converting calls originating in an enterprise mobile phone to any fixed-line phone (M2F) in « fixed to fixed » (F2F) calls, up to 80% cheaper.

The GSM gateway is provided with the following features:

- Routing: enables incoming and outgoing calls routing, from/to any destination (ISDN, VoIP, CTI applications).
- Incoming call number presentation: SIM card numbers related to calls placed to GSM phones through the gateway may be presented or not.
- The GSM gateway can support as many simultaneous calls as the number of included GSM ports.

### 2.2 Any SIM to Any Port technology

The GSM gateway integrates the new unique QuesCom “Any SIM to Any Port” technology.

This multiplexing technology enables the optimisation of SIM card price plans.

The gateway automatically activates or deactivates SIM cards in order to avoid over consumption or to use the best tariff according to price plan rules (week, week end, day, night, etc)

### 2.3 Call-Through

The Call-Through feature allows a correspondent to call back the user from the QuesCom 300.

When a call from an internal phone is outgoing via a GSM Gateway module, a number is displayed on the recipient's mobile phone (when number presentation is enabled).

When the correspondent calls this number back, he is automatically routed to the last internal user who has called this number through the gateway.

The call-through feature must be activated for each user's profile.

### 2.4 Call-Back

The call-back feature prevents the mobile phone user from being billed for the call.

The user calls a correspondent inside the company. The QuesCom 300 gateway intercepts and immediately disconnects the call. The device then calls the user back. When the user picks up, the QuesCom 300 gateway calls the number previously called and puts both calls together.

This feature may be coupled to an IVR. The Call-back user can be connected to an IVR message prompting for dialling the number of the recipient.



## 2.5 Voice rate plans management

This feature enables the optimisation of the use of the SIM cards and the GSM gateway use.

- Detailed management of GSM rate plans and/or prepaid cards.
- Routing by the best SIM card according to the operator and the remaining credit.
- Minutes carrying forward.
- Minute/SMS management included in the bundle,
- Alert when credit is empty.

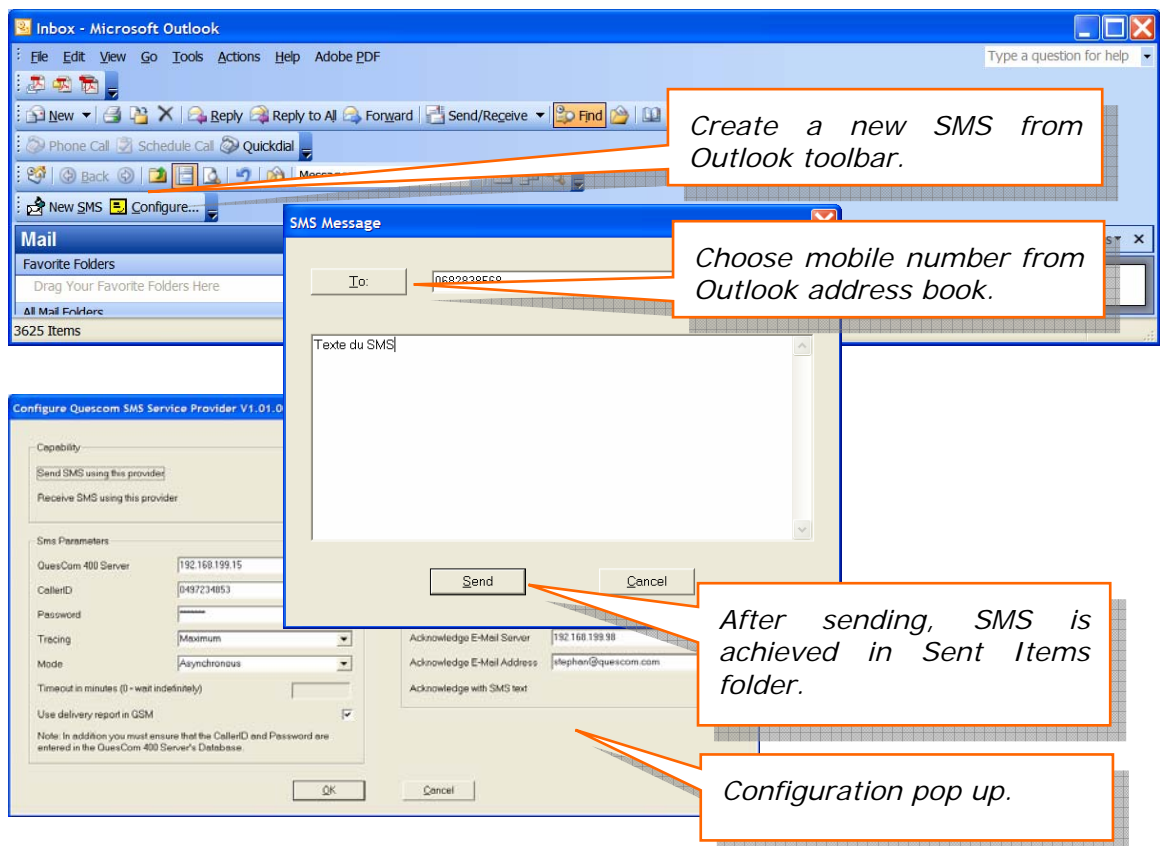
## 2.6 Dial Tone back-up

Back-up routing rules may be configured when a specific network is not available, so that call forwarding to other networks is ensured.

For instance, when the GSM network is not available or all GSM ports are busy, it is possible to route all outgoing GSM calls to the overflowing GSM network by the ISDN network.

## 2.7 SMS management

SMS sending and receiving is possible by standard use via the Virtual Printer Driver (VPD – QuesCom application installed on the user's PC) or via a Microsoft Outlook plug-in:



## 2.8 Least Cost Routing (LCR)

The Least Cost Routing (LCR) feature may be used to modify a called number by adding/removing/replacing it or a portion of it.

## 2.9 QuesCom 300 configuration

The QuesCom 300 includes by default:

- 2 or 4 GSM channels
- a slot tray for 12 SIM cards

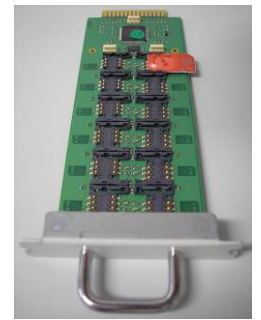


### GSM channel add-on

The 4 GSM channel add-on brings additional resources to base configuration above up to 6 or 8 GSM channels per QuesCom 300.

### SIM tray add-on

The SIM tray add-on (for 12 or 24 SIM cards) brings additional resources to base configuration above up to 24 or 36 SIM card slots.





### 3. Productivity Improvement features

With a whole range of telecom services, sedentary and mobile co-workers are reachable wherever they are.

#### 3.1 Mobility Services Pack

The QuesCom 300 is the key device in your telephony organisation to achieve better productivity by integrating your mobile phones into your PBX environment and at the same time optimise your communication costs.

The QuesCom 300 is delivered with 2 user licences. Each additional user may purchase a licence. Licences are available in packs of 25, 50, 100, 150, 200, 250, 300 or 500 licences. (The QuesCom 400 is required for 100 users and more.)

Combination of packs is possible.

##### 3.1.1 One number

When a "Mobile user" has created and activated a redirection rule, any incoming call to his fixed phone extension routed to the QuesCom 300 is redirected to another phone number (typically his GSM phone).

This redirection is transparent to the caller.

It's no more necessary to publish different phone numbers (fixed extension, GSM...). You are always reachable on your fixed phone number, even when you are out of office.

The One Number can also receive all incoming fax calls (see Fax sending and receiving – section 3.1.4).

All "Mobile Users" must be declared and activated from the QuesCom 300 administration interface. Each "Mobile User" defines his own redirection rules from the web-based interface (See Personal Call Manager Basic 3.1.2).

##### 3.1.2 Personal Call Manager Basic

From the user centric QPuser web interface, each "Mobile user" can :

- define up to 5 redirection profiles.
  - An incoming call can be automatically redirected to another number, according various events: unconditional redirection, busy, and no answer (no answer delay is configurable).
- activate a redirection profile among 5 available profiles
  - Profiles can be activated from Personal Call Manager Basic but also from any classic phone. (See Mobile Extension 3.1.3).
- view the received, missed or placed call log,
- view the received or sent fax log.



### 3.1.3 Mobile Extension

The « Mobile User » uses a mobile phone – or any other phone – to « connect » to the QuesCom 300 Gateway by dialling a direct line number dedicated to « Mobility Services ».

The Mobile User is automatically identified by the QuesCom 300 Gateway thanks to the phone number.

After identification, the Mobile User accesses the main menu and listens to a tone. So the user can:

- call his (internal or external) correspondent by dialling the number plus #
- access the functional menu by typing \*

When accessing the functional menu, the user can:

- check his voice mailbox by typing 9
- activate a redirection profile by typing 8 followed by the number of the profile to be activated
- hang up by typing #
- go back to the main menu by typing \*

When the mobile user places a call as described above, the identified number presented to the correspondent (in case of call number presentation availability) is the “one number” on which the user is always reachable (see One Number 3.1.1).

When in conversation, the user (caller or called) can, as in the office:

- Place the correspondent “on hold” by pressing \*2 (with a music announcement).
- Place a second call by pressing \*2 and the second number followed by #
  - o then swap from a correspondent to one other by pressing \*2
  - o or transfer the call to the second correspondent by hanging up
- Transfer a call by pressing \*3 followed by the second number and #

### 3.1.4 Fax sending and receiving

#### Fax receiving by email

The QuesCom 300 intercepts an incoming call, detects the fax carrier, generates a TIFF file and e-mails it (SMTP) as an attachment to the recipient’s address.

- o On one number. Faxes and phone calls can be received on the same number.
- o On dedicated DDI. The user can afterwards check, save, delete, transfer the file from its client e-mail box.

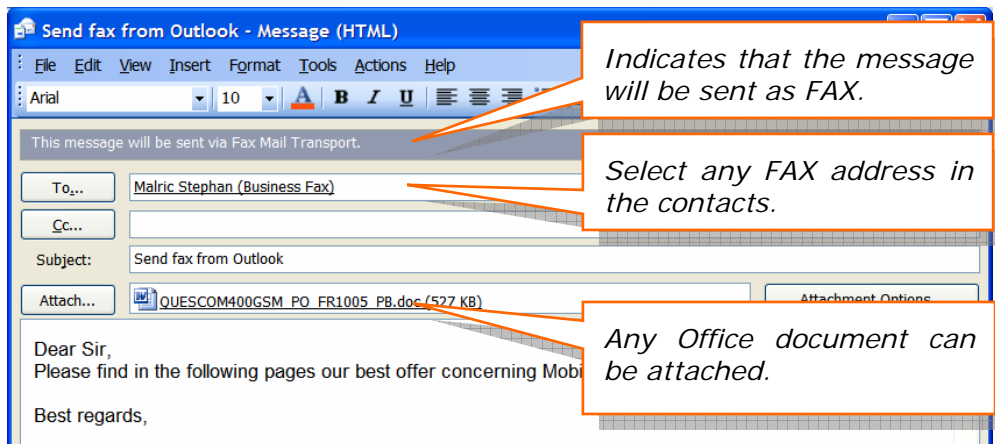


### Fax sending

The user can send a fax from any Windows application by using the QuesCom printer driver (Virtual Printer Driver)

Fax sending may be submitted for authorisation by password according to the sender's number (fax right management).

The QuesCom 300 licensing allows by default 4 simultaneous faxes sending and receiving. This number can be increased by adding a voice module.



### 3.1.5 Voice messaging

The following features are included into the QuesCom 300 voice messaging:

- Customised IVR
- Languages: French, English and Spanish
- 10 messages per user by default
- Customised user's voice mail message. Customised corporate voice mail message.
- New message alert by e-mail or automatic call.
- Message checking:
  - o By e-mail (WAV file attached)
  - o By phone (see Mobile Extension 3.1.3)
- 30 Mb are allocated on the Compact Flash card for all messages.

### 3.1.6 QuesCom 300 minimum hardware requirements

The QuesCom 300 includes by default:

- a voice module allowing fax and voice digitalising
- 2 user licences Mobility Services Pack
- a licence for 4 simultaneous faxes (only in ISDN environment)

### Voice module add-on

QuesCom 300's voice module add-on brings additional resources and enhances licence above from 4 simultaneous faxes to an unlimited number (limited by available phone resources)



## 3.2 Personal Call Manager Standard & Business

CTI applications allow telephony features monitoring from any computer.

Each Personal Call Manager Standard or Business user is subject to licence purchasing. Licences are available in packs of 5, 10, 25, 50, 75 or 100.

### 3.2.1 PCM Standard

PCM Standard features are:

- Pop-up alert with caller's number display
- Number dialling from any PC (click-to-dial feature)
- Call log
- Unattended calls log
- Advanced search of names and phone numbers

PCM Standard functions as:

- Outlook component allowing enhancement of QuesCom 300's CTI capabilities
- Independent application interacting with Microsoft Outlook Express, Windows Integrated Address Book and any other ODBC database.

### 3.2.2 PCM Business

PCM Business is especially designed for call centre environments or workgroups coordination and is provided with the following features:

- Alert pop-up with caller's name display.
- Call log.
- Unattended call listing,
- Advanced searching for names and phone numbers.

This application is independent and enhances the QuesCom 300 CTI capabilities within a Microsoft Exchange Server or Lotus Notes environment.

### 3.2.3 Users' PC minimum hardware requirements

- Windows 95/98/Me, Windows NT SP 6a, Windows 2000/2003, Windows XP.
- Outlook 97, 98, 2000, 2002 and 2003
- Lotus Notes Version 5 or later
- Any database with ODBC driver

### 3.2.4 Other CTI feature

A QuesCom CTI API is also available enabling connection of third party applications (TAPI compatible driver) such as CRM applications. Please see QuesCom Support Team's integration services.



## 4. Features of Customer Satisfaction Improvement

Customer Satisfaction Pack is a key solution that will efficiently and quickly fulfill the needs of enterprises that do not attend all calls or loose some of them.

### 4.1 Basic IVR feature

It enables digits collecting after a voice announcement. Classic message may be replaced at the convenience of the QuesCom 300's administrator.

Basic IVR feature is limited to 2-level messages maximum. GeoVox IVR module provides an interactive and complete IVR.

It allows to attend a steady flow of call log.

### 4.2 GeoVox IVR: Interactive Voice Response

An Interactive Voice Response (IVR) has been integrated within the QuesCom 300. It allows a steady flow of call attending by optimising incoming call forwarding.

GeoVox IVR is available in classic version (5 scenarios) and full version (100 scenarios). No voice card installation on the PBX is necessary.

GeoVox IVR comprises the following features:

- Pre-answer
- Customisable schedule and calendar
- Multilingual
- Call forwarding upon ringing, upon number presentation and upon busy
- Addition of public and private networks
- Message delivery into voicebox
- Number memorising
- Incoming number monitoring
- Connection to an alternative scenario

### 4.3 GeoRoute

This application is integrated into the QuesCom 300 and optimises selection of incoming call routing.

GeoRoute is available in licence packs of 25, 50, 100, 250 and 500 numbers. No voice card installation is necessary on the PBX.

GeoRoute makes telephone access easier to enterprises, restraintless for the caller. The switchboard-linked software automatically forwards the call towards the right correspondent.

GeoRoute automatically routes the calls according to predefined rules and:

- Caller's number
- Correspondent's number
- Information stored in a database



## 5. VoIP features

The QuesCom 300 supports TCP/IP communication.

- H.323 (v2) and SIP compatible.
- Supported codecs: G.711, G.723, G.729.

### 5.1 Interconnection in VoIP

The QuesCom 300 allows to:

- Build a communication between a “Master” and a “Slave” QuesCom appliance. (E.g. Master/Slave architecture used as GSM Gateway: GSM calls may need to be routed onto the other appliance whilst all local GSM ports are busy).
- Interconnect the QuesCom 300 to an external gateway, gatekeeper or PBX so that VoIP calls are routed from or towards the QuesCom gateway.
- Interconnect the QuesCom 300 gateway to an IP Telephony operator, for instance, an ITSP or SIP Provider which provide IP Call Routing.

Nevertheless, the VoIP feature does not allow an IP Phone to be directly connected to the QuesCom 300.

### 5.2 Minimum hardware requirements

The QuesCom 300 includes by default:

- a voice module allowing voice digitalising,
- a licence for **16 simultaneous VoIP**

- **Voice module add-on**

QuesCom 300's voice module add-on brings additional resources to enhance licence above from 16 to 32 simultaneous VoIP.

- **Codecs restrictions**

- The QuesCom 300 gateway only supports 24 ports using codec G.723 whereas 32 ports are supported with codecs G.711 and G.729.
- Actual version simultaneously supports G.711 and G.729 in multiprotocol use (i.e. 2 or 3 protocols in simultaneous use).



## 6. Hardware overview

### 6.1 Physical overview of chassis



Length: 335 mm  
Depth: 335 mm  
Height: 50 mm  
Weight: max. 5 kg

### 6.2 Network interface modularity

#### 6.2.1 Slots for ISDN cards

1 slot is allocated to ISDN cards for connections to the PBX and public network. The available ISDN cards (which can be ordered) are BRI S/T 4 ports & PRI 2 ports:

- ISDN BRI (T0/S0)
  - Ports: 4 ports BRI S/T per card
  - Interface: Standard S/T, RJ45, upon request NT, TE.
  - ISDN Signalling: EuroISDN (Europe), EuroNumeris/VN6 (France)
  - Cabling : straight cable (3 & 6 and 4 & 5 wire pairs) under 40 metres in length, characteristic impedance 120 Ohms, maximum attenuation 20 dB/km
  - "Pass-through" system (2 ports in NT mode for connection to the PBX, 2 ports in TE mode for connection to the public network)
- ISDN PRI (T2)
  - Ports: 2 PRI ports per card
  - Interface: G.703 (2 ports per card)
  - ISDN Signalling: EuroISDN (Europe), EuroNumeris/VN6 (France)
  - Cabling: straight cable (1 & 2 and 4 & 5 wire pairs) under 40 metres in length, characteristic impedance 120 Ohms, maximum attenuation 20 dB/km
  - "Pass-through" system (1 port in NT mode for connection to the PBX, 1 port in TE mode for connection to the public network)



### 6.2.2 Slot for GSM module

- Number of ports per module: 2 or 4 GSM ports
- 1 card by default (2 or 4 ports) + 1 optional card (4 additional ports)
- Siemens TC35i GSM module
- 1 incoming or outgoing call per GSM port
- Dual-band compatibility on each port: GSM 900 MHz and DCS 1800MHz standards
- Digital quality for calls to cellular phones
- Multi-operator support per QuesCom 300 and per SIM card
- Antenna type: GSM 900-1800MHz omni-directional antenna, Hirschmann "MCA18 90 MH", cable length: 2,5 m, SMA female connector. Height 9 cm, Gain 0dB, magnetic base.
- 1 antenna output per card (ie per 4 ports)
- Level of reception necessary for SIM cards registration onto GSM network: between -80 dB and -50 dB.
- Optional items:
  - Available antenna coupler 4 to 1 (1 antenna maximum for 16 GSM ports): bundled with 4 male/male cables, SMA connector, and cable length 0.3 m. Generated attenuation: 8db.
  - Extension cord: 2 SMA connectors, male/female, length 10 metres. Generated attenuation: 11.5dB to 900 MHz.
  - Extension cord: 2 SMA connectors, male/female, length 30 metres. Generated attenuation: 15dB to 900 MHz.
  - High quality omni-directional 900-1800 MHz GSM antenna: average gain: 5dB, N connector, bundled with fixing and N/SMA adapter. Height: 60 cm. Note: cable is not included.
  - High quality omni-directional 900-1800 MHz GSM antenna: average gain: 2dB, SMA connector, height: 60 cm. Bundled with fixing and 5 metre cable.





### 6.2.3 Slots and voice module overview

1 slot is allocated to 1 optional voice module. This voice module enables to enhance resources to manage faxes and the number of VoIP sessions depending on following specifications:

- Compatible with SIP protocols (use in User Agent or SIP Proxy Server mode) and H.323 (use in gateway H.323 or gatekeeper H.323 mode).
- Supported codecs: G.711 (Alaw and Ulaw), G.729 (annexes A, B and AB) & G.723 (5.3 and 6.3).
- Codec compression:
  - 1 call in G711 is about 64 Kb/s of bandwidth
  - 1 call in G729 is about 15 Kb/s of bandwidth
  - 1 call in G723 is about 5 Kb/s of bandwidth
- Possibility to set the codec frame size between 10 and 110 ms.
- The QuesCom 300 is also able to manage these 3 codecs dynamically (possibility of using mixed codecs).
- A software parameter in the QuesCom 300 lets you choose the codec preference order.

## 6.3 Use environment

- Power supply: auto-adaptative 100-240 VAc.
- Power: 45 VA.
- Temperature: 0°C to +35°C.
- Relative humidity: 5% to 80%, non-condensing.
- Marking CE.
- Compatible with the security specification UL60950 and IEC950.

## 6.4 Stocking environment

- Temperature: -20°C to +70°C
- Relative humidity: 5% to 80%, non-condensing.

## 6.5 Delivery content

- 1 power supply (French cable).
- 1 serial cable.
- 1 Ethernet cable.
- 1 CD-Rom.
- GSM antennas (GSM ports version)

Note: ISDN cables are not included.

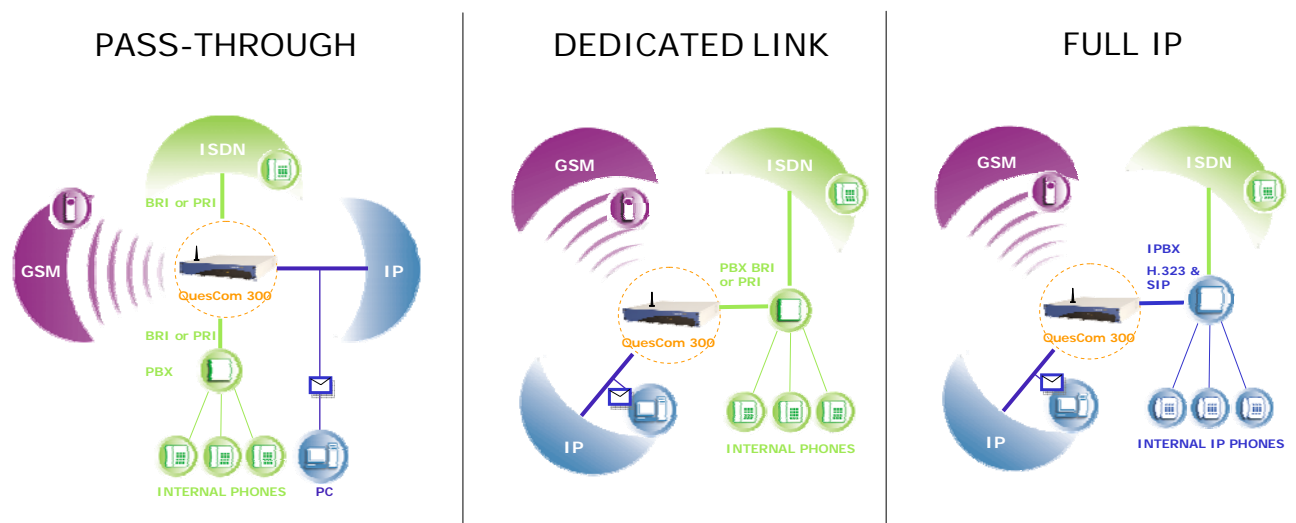


## 7. Integration within a PBX environment

### 7.1 Easy, quick and transparent installation

- Easy, quick and transparent installation on the existing telephony system: neither alteration, replacement nor hardware or software update is required in the existing infrastructure.
- PBX-independent architecture: compatible with any ISDN PBX.
- Fixed-line phones (other than PBX phones) are not limited.

### 7.2 Multimodal installation



- Installed between the PBX and the landline telephony operator network (pass-through mode): the appliance makes incoming and/or outgoing calls interception easier.
- Directly installed onto the PBX: non-standard use is possible but requires configuration operations (under QuesCom Technical Support supervision).
- Directly installed onto the operator network: non-standard use is possible (fax server or mobility type configuration) but requires configuration (under QuesCom Technical Support supervision).

### 7.3 Evolutive architecture: Stand-Alone/Relay functioning

- ISDN port extension is possible. GSM port extension is also possible by adding one or more QuesCom 300 appliance(s).
- More than 8 GSM ports by stacking 2 or more QuesCom 300 appliances.
- Multi-site GSM resources mutualisation is possible.



## 8. QuesCom 300 administration

### 8.1 Administration PC minimum hardware requirements

- Processor: Pentium III 850Mhz
- RAM: 256 Mb
- Hard drive: 1 Gb minimum
- O.S.: Windows 2000, NT, XP
- Browser: Internet Explorer 5.5 or later mandatory.

### 8.2 Available connection types

- Local administration via serial port RS232 is possible: connection of console cable included between the PC and the QuesCom 300, and use of HyperTerminal (Private Edition, recommended).
- Remote administration via IP network: use of Ethernet port, use of Telnet (used port: 23) and FTP (used port: 21).
- Remote administration via ISDN network: use of ISDN modem and use of RAS feature available by default on all SDA.

### 8.3 QuesCom 300 configuration

- 'Network' configuration of the QuesCom 300 by command prompts under Telnet session.
- Database configuration of the QuesCom 300 using a web-based interface (Qportal, used port: 8000).
  - Use of Internet Explorer 5.5 or later mandatory.
  - User authentication by login and password
  - All product features are configurable.

### 8.4 QuesCom 300 supervision

- Interface based on Microsoft Management Console.
- Ports used: 1168 & 1169 (UDP).
- Installation from the QuesCom CD-ROM.
- Supervision of Gatekeeper and gateway modules:
  - Gatekeeper:
    - Hardware and software components information and settings
    - Telnet console
    - Traces download
    - Hardware components monitoring (temperatures..)
    - Gatekeeper system events
    - Real time communication events



- Gateway
  - Software components information and parameters
  - Statistics
  - Gateway system events
  - Real time communication events
  - Real time GSM trunks monitoring
  - GSM signal quality monitoring
  - DSP resources monitoring
- Qportal access

## 8.5 Alarms and failure

All errors are visible through the QuesCom Management Console.

The gateway also has an SNMP MIB and can send SNMP traps to network management devices if configured.

In the case of overheating (for example due to fan failure) an audible alarm sounds on the device.

## 8.6 Backup/restore configuration

A complete backup of all data (included the database) and whole registry can be done by the administrator.

Then, a backup file (format .sfx) can be downloaded and saved as a backup on your computer.

Note that a brief service interruption is necessary.

## 8.7 Duplication of configuration

On homogenous configuration QuesCom 300, a duplication of configuration from one appliance to another is possible if both hardware configurations are the same.

The Qset software (QuesCom property) allows to open a .sfx file from a QuesCom 300, to modify settings (IP addresses, network names and serial number) then save the new settings into a renamed .sfx file which can be used in another QuesCom 300.

This feature is useful when spare appliances updating is necessary.

Note that a brief service interruption is necessary.

## 8.8 Software update

Firmware update file can be downloaded from the Support website by the QuesCom 300 administrator. The upgrade process is very simple and automatic one you have launched the command name.

Note that a brief service interruption is necessary.



## 8.9 Traces

The gateway logs all call details in a CDR (Call Detail Record) database and can produce a number of detailed reports. The details recorded are the called and calling party numbers, date and time of the call and its status (call connected, no response, engaged...)

Summary views are available from the web interface and a number of more detailed filters can be defined. All data can also be exported to a third party application and/or emails can be sent automatically to an administrator.

Traces of all events are also available on the bird memory. All traces are dispatched by component (gatekeeper, gateway, qwebsvr...). They have a maximum size of 4 Mb and loop when the file is full.

An IP sniffer is embedded into the QuesCom 300 but it has to be enable/disable manually.

## 8.10 Communication logs

4 logs are available:

- Attended calls
- Interrupted or failed calls: cause is displayed (ITU standard)
- Sent, received or failed faxes
- Sent, received or failed SMS

Information displayed:

- Origin and destination of the call
- Called and calling numbers
- Number before and after LCR management
- Hour, date of beginning and end of the call
- Duration of the call
- Failure type of call according table of failed calls
- Call type (ISDN, VoIP, CTI, ...) and details about used ISDN and GSM ports
- Microsoft Access database:
  - Direct viewing via the Qportal web-based interface: simple view is available by using criteria to be defined.
  - Possibility of exporting towards a third-party application and/or automatically sent e-mail.

## 8.11 Geoport CDR

- QuesCom 300 CDRs may be sent by e-mail (Text format), and by period to be defined. This feature must be enabled/disabled.
- Exporting of information needed for financial reports on communication costs towards an external application (e.g. GeoTaxe).

